CLAIMS

1. The present invention provides a compound of formula (I):

$$R^{1}-(Q)_{m}-(CR^{2}R^{3})_{n}-T$$
 $X^{2}-X^{1}$ $X^{3}-X^{4}$ $X^{3}-X^{4}$ $X^{3}-X^{4}$

s wherein

Z is CR^4R^5 , C(O) or CR^4R^5 -Z¹:

Z¹ is C₁₋₄ alkylene, C₂₋₄ alkenylene or C(O)NH;

R¹ represents a C₁-C₁₂ alkyl group optionally substituted by one or more substituents independently selected from cyano, hydroxyl, C₁-C₆ alkoxy, C₁-C₆ alkylthio, C₃₋₇ cycloalkyl, C₁-C₆ alkoxycarbonyl and phenyl (itself optionally substituted by one or more of halogen, nitro, cyano, C₁-C₆ alkyl, C₁-C₆ haloalkyl, phenyl(C₁-C₆ alkyl), C₁-C₆ alkoxy, C₁-C₆ haloalkoxy, S(O)₂(C₁-C₆ alkyl), C(O)NH₂, carboxy or C₁-C₆ alkoxycarbonyl); or R¹ represents C₂-C₆ alkenyl optionally substituted by phenyl (itself optionally substituted by one or more of halogen, nitro, cyano, C₁-C₆ alkyl, C₁-C₆ haloalkyl, phenyl(C₁-C₆ alkyl),

15 C₁-C₆ alkoxy, C₁-C₆ haloalkoxy, S(O)₂(C₁-C₆ alkyl), C(O)NH₂, carboxy or C₁-C₆ alkoxycarbonyl); or

R¹ represents a 3- to 14-membered saturated or unsaturated ring system which optionally comprises up to two ring carbon atoms that form carbonyl groups and which optionally further comprises up to 4 ring heteroatoms independently selected from nitrogen, oxygen and sulphur, wherein the ring system is optionally substituted by one or more substituents independently selected from: halogen, cyano, nitro, oxo, hydroxyl, C₁-C₈ alkyl, C₁-C₆ hydroxyalkyl, C₁-C₆ haloalkyl, C₁₋₆ alkoxy(C₁-C₆ alkyl), C₃-C₇ cycloalkyl(C₁-C₆ alkyl), C₁-C₆ alkyl), C₁-C₆ alkyl), C₁-C₆ alkyl), aryl(C₁-C₆ alkyl), heterocyclyl(C₁-C₆ alkyl), arylS(O)₂(C₁-C₆ alkyl),

heterocyclylS(O)₂(C₁-C₆ alkyl), aryl(C₁-C₆ alkyl)S(O)₂, heterocyclyl(C₁-C₆ alkyl)S(O)₂, C₂-C₆ alkenyl, C₁-C₆ alkoxy, carboxy-substituted C₁-C₆ alkoxy, C₁-C₆ haloalkoxy, C₁-C₆ hydroxyalkoxy, C₁-C₆ alkylcarboxy-substituted C₁-C₆ alkoxy, aryloxy, heterocyclyloxy, C₁-C₆ alkylthio, C₃-C₇ cycloalkyl(C₁-C₆ alkylthio), C₃-C₆ alkynylthio, C₁-C₆ alkylcarbonylamino, C₁-C₆ haloalkylcarbonylamino, SO₃H, -NR⁷R⁸, -C(O)NR²³R²⁴,

S(O)₂NR¹⁸R¹⁹, S(O)₂R²⁰, R²⁵C(O), carboxyl, C₁-C₆ alkoxycarbonyl, aryl and heterocyclyl;

wherein the foregoing aryl and heterocyclyl moieties are optionally substituted by one or more of halogen, oxo, hydroxy, nitro, cyano, C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, phenyl(C_1 - C_6 alkyl), C_1 - C_6 alkoxy, C_1 - C_6 haloalkoxy, $S(O)_2(C_1$ - C_6 alkyl), $C(O)NH_2$, carboxy or C_1 - C_6 alkoxycarbonyl;

5 m is 0 or 1;

Q represents an oxygen or sulphur atom or a group NR⁹, C(O), C(O)NR⁹, NR⁹C(O) or CH=CH;

n is 0, 1, 2, 3, 4, 5 or 6 provided that when n is 0, then m is 0; each R^2 and R^3 independently represents a hydrogen atom or a C_1 - C_4 alkyl group, or

(CR²R³)_n represents C₃-C₇ cycloalkyl optionally substituted by C₁-C₄ alkyl;

T represents a group NR¹⁰, C(O)NR¹⁰, NR¹¹C(O)NR¹⁰ or C(O)NR¹⁰NR¹¹;

X¹, X², X³ and X⁴ are, independently, CH₂, CHR¹² {wherein each R¹² is, independently, C₁-C₄ alkyl or C₃-C₇ cycloalkyl(C₁-C₄ alkyl)} or C=O; or, when they are CHR¹², the R¹² groups of X¹ and X³ or X⁴, or, X² and X³ or X⁴ join to form a two or three atom chain

which is CH₂CH₂, CH₂CH₂, CH₂OCH₂ or CH₂SCH₂; provided always that at least two of X¹, X², X³ and X⁴ are CH₂;

R⁴ and R⁵ each independently represent a hydrogen atom or a C₁-C₄ alkyl group;
R⁶ is aryl or heterocyclyl, both optionally substituted by one or more of: halogen, cyano, nitro, oxo, hydroxyl, C₁-C₈ alkyl, C₁-C₆ hydroxyalkyl, C₁-C₆ haloalkyl, C₁₋₆ alkoxy(C₁-C₆

alkyl), C₃-C₇ cycloalkyl(C₁-C₆ alkyl), C₁-C₆ alkylthio(C₁-C₆ alkyl), C₁-C₆ alkyl), C₁-C₆ alkyl), C₁-C₆ alkyl), aryl(C₁-C₆ alkyl), aryl(C₁-C₆ alkyl), heterocyclyl(C₁-C₆ alkyl), aryl(C₁-C₆ alkyl), heterocyclyl(C₁-C₆ alkyl), aryl(C₁-C₆ alkyl)S(O)₂, heterocyclyl(C₁-C₆ alkyl)S(O)₂, C₂-C₆ alkenyl, C₁-C₆ alkoxy, carboxy-substituted C₁-C₆ alkoxy, C₁-C₆ haloalkoxy, C₁-C₆ hydroxyalkoxy, C₁-C₆ alkylcarboxy-

substituted C₁-C₆ alkoxy, aryloxy, heterocyclyloxy, C₁-C₆ alkylthio, C₃-C₇ cycloalkyl(C₁-C₆ alkylthio), C₃-C₆ alkynylthio, C₁-C₆ alkylcarbonylamino, C₁-C₆ haloalkylcarbonylamino, SO₃H, -NR¹⁶R¹⁷, -C(O)NR²¹R²², S(O)₂NR¹³R¹⁴, S(O)₂R¹⁵, R²⁶C(O), carboxyl, C₁-C₆ alkoxycarbonyl, aryl and heterocyclyl; wherein the foregoing aryl and heterocyclyl moieties are optionally substituted by one or more of halogen, nitro,

cyano, C₁-C₆ alkyl, C₁-C₆ haloalkyl, phenyl(C₁-C₆ alkyl), C₁-C₆ alkoxy, C₁-C₆ haloalkoxy, S(O)₂(C₁-C₆ alkyl), C(O)NH₂, carboxy or C₁-C₆ alkoxycarbonyl;

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 R^7 , R^8 , R^9 , R^{10} , R^{11} , R^{13} , R^{14} , R^{16} , R^{17} , R^{18} , R^{19} , R^{21} , R^{22} , R^{23} and R^{24} are, independently hydrogen, C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, C_1 - C_6 hydroxyalkyl, C_3 - C_7 cycloalkyl, C_3 - C_7 cycloalkyl(C_1 - C_4 alkyl) or phenyl(C_1 - C_6 alkyl); and,

- R¹⁵ and R²⁰ are, independently, C₁-C₆ alkyl, C₁-C₆ hydroxyalkyl, C₃-C₆ cycloalkyl, C₃-C₇ cycloalkyl(C₁-C₄ alkyl) or C₁-C₆ alkyl optionally substituted by phenyl;

 R²⁵ and R²⁶ are, independently, C₁-C₆ alkyl or phenyl (optionally substituted by one or more of halogen, nitro, cyano, C₁-C₆ alkyl, C₁-C₆ haloalkyl, phenyl(C₁-C₆ alkyl), C₁-C₆ alkoxy, C₁-C₆ haloalkoxy, S(O)₂(C₁-C₆ alkyl), C(O)NH₂, carboxy or C₁-C₆ alkoxycarbonyl);
- or a pharmaceutically acceptable salt thereof, or solvate thereof, or a solvate of a salt thereof;
 provided that when T is C(O)NR¹⁰ and R¹ is optionally substituted phenyl then n is not 0.
- 2. A compound according to claim 1, wherein Q represents a sulphur atom or a group NH, C(O) or NHC(O).

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- 3. A compound according to claim 1 or claim 2, wherein T represents a group NH, C(O)NH or NHC(O)NH.
- 4. A compound according to any one of claims 1 to 3, wherein X¹, X², X³ and X⁴ are all CH₂.
 - 5. A compound as defined in any one of Examples 1 to 416.
- 25 6. A process for the preparation of a compound of formula (I) as defined in claim 1 which comprises:
 - (a) when n is at least 1, the CR²R³ group attached directly to T is CHR³ and T is NR¹⁰, reacting a compound of general formula

$$R^{1}-(Q)_{m}-(CR^{2}R^{3})_{n}-C \nearrow Q$$

wherein n' is 0 or an integer from 1 to 3 and R¹, R², R³, m and Q are as defined in formula (I), with a compound of general formula

$$R^{10}$$
 $X^{2}-X^{1}$ $N-Z-R^{6}$ (III)

or a salt thereof, wherein X^1 , X^2 , X^3 , X^4 , Z, R^6 and R^{10} are as defined in formula (I), in the presence of a reducing agent; or

(b) when n is at least 1, the CR^2R^3 group attached directly to T is $C(C_1-C_4$ alkyl)₂ and T is NR^{10} , reacting a compound of general formula

$$R^{1}$$
- $(Q)_{m}$ - $(CR^{2}R^{3})_{n}$ - C - NHR^{10}

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wherein n' is 0 or an integer from 1 to 3, R^2 and R^3 each independently represent a C_1 - C_4 alkyl group, and R^1 , R^2 , R^3 , R^{10} , m and Q are as defined in formula (I), with a compound of general formula

$$O = \begin{array}{c} X^2 - X^1 \\ N - Z - R^6 \\ X^3 - X^4 \end{array}$$

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wherein X^1 , X^2 , X^3 , X^4 , Z and R^6 are as defined in formula (I), in the presence of a reducing agent; or

(c) when T is C(O)NR¹⁰, reacting a compound of general formula

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wherein R^1 , R^2 , R^3 , Q, m and n are as defined in formula (I), with a compound of formula (III) or a salt thereof as defined in (a) above; or

(d) when m is 1 and Q is NR^9 , reacting a compound of general formula (VII), $R^1 - L^1$, wherein L^1 represents a leaving group (e.g. a halogen atom) and R^1 is as defined in formula (I), with a compound of general formula

NHR⁹-
$$(CR^2R^3)_n$$
-T- X^2-X^1
N-- Z-R⁶
(VIII)

or a salt thereof, wherein n, T, X¹, X², X³, X⁴, Z, R², R³, R⁶ and R⁹ are as defined in formula (I); or

(e) when at least one of R⁴ and R⁵ represents a hydrogen atom, reacting a compound of general formula

$$R^{1}-(Q)_{m}-(CR^{2}R^{3})_{n}-T$$
 $X^{2}-X^{1}$
 $X^{3}-X^{4}$
 (IX)

or a salt thereof, wherein R^1 , R^2 , R^3 , Q, m, n, X^1 , X^2 , X^3 , X^4 and T are as defined in formula (I), with a compound of general formula (X), R^6 - C(O) - R^{20} , wherein R^{20} represents a hydrogen atom or a C_1 - C_4 alkyl group and R^6 is as defined in formula (I), in the presence of a reducing agent; or

(f) reacting a compound of formula (IX) as defined in (e) above, with a compound of general formula

wherein L² represents a leaving group (e.g. a halogen atom) and Z and R⁶ are as defined in formula (I); or

(g) when T is NR¹⁰, reacting a compound of general formula

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$$R^{1}-(Q)_{m}-(CR^{2}R^{3})_{n}-L^{3}$$

wherein L³ represents a leaving group (e.g. a halogen atom) and R¹, R², R³, m, n and Q are as defined in formula (I), with a compound of formula (III) or a salt thereof as defined in (a) above; or

(h) when T is NHC(O)NR¹⁰, reacting a compound of general formula

$$R^{1}-(Q)_{m}-(CR^{2}R^{3})_{n}-N=C=O_{(XIII)}$$

wherein R¹, R², R³, Q, m and n are as defined in formula (I), with a compound of formula (III) or a salt thereof as defined in (a) above; or

(i) when T is C(O)NH, Z is CH₂, n is 1, R² and R³ are hydrogen or C₁-C₄ alkyl and Q is oxygen or sulphur, reacting a compound of formula (XIV):

Hal
$$= \frac{R^2 O}{N} = \frac{X^2 - X^1}{N - z - R^6}$$
 (XIV)

wherein Hal is a suitable halogen, R^2 , R^3 , X^1 , X^2 , X^3 , X^4 , Z and R^6 are as defined in formula (I), with R^1 OH or R^1 SH in the presence of a suitable base;

and optionally after (a), (b), (c), (d), (e), (f), (g), (h) or (i) forming a pharmaceutically acceptable salt or solvate of the compound of formula (I) obtained.

- 7. A pharmaceutical composition comprising a compound of formula (I), or a pharmaceutically acceptable salt or solvate thereof, as claimed in any one of claims 1 to 4 in association with a pharmaceutically acceptable adjuvant, diluent or carrier.
- 8. A process for the preparation of a pharmaceutical composition as claimed in claim 7 which comprises mixing a compound of formula (I), or a pharmaceutically acceptable salt or solvate thereof, as claimed in any one of claims 1 to 4 with a pharmaceutically acceptable adjuvant, diluent or carrier.

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- 9. A compound of formula (I), or a pharmaceutically-acceptable salt or solvate thereof, as claimed in any one of claims 1 to 4 for use in therapy.
- 10. Use of a compound of formula (I),

wherein

Z is CR^4R^5 , C(O) or CR^4R^5 -Z¹;

 Z^1 is C_{1-4} alkylene, C_{2-4} alkenylene or C(O)NH;

- R¹ represents a C₁-C₁₂ alkyl group optionally substituted by one or more substituents independently selected from cyano, hydroxyl, C₁-C₆ alkoxy, C₁-C₆ alkylthio, C₃₋₇ cycloalkyl, C₁-C₆ alkoxycarbonyl and phenyl (itself optionally substituted by one or more of halogen, nitro, cyano, C₁-C₆ alkyl, C₁-C₆ haloalkyl, phenyl(C₁-C₆ alkyl), C₁-C₆ alkoxy, C₁-C₆ haloalkoxy, S(O)₂(C₁-C₆ alkyl), C(O)NH₂, carboxy or C₁-C₆ alkoxycarbonyl); or
- R¹ represents C₂-C₆ alkenyl optionally substituted by phenyl (itself optionally substituted by one or more of halogen, nitro, cyano, C₁-C₆ alkyl, C₁-C₆ haloalkyl, phenyl(C₁-C₆ alkyl), C₁-C₆ alkoxy, C₁-C₆ haloalkoxy, S(O)₂(C₁-C₆ alkyl), C(O)NH₂, carboxy or C₁-C₆ alkoxycarbonyl); or
- R¹ represents a 3- to 14-membered saturated or unsaturated ring system which optionally comprises up to two ring carbon atoms that form carbonyl groups and which optionally further comprises up to 4 ring heteroatoms independently selected from nitrogen, oxygen and sulphur, wherein the ring system is optionally substituted by one or more substituents independently selected from: halogen, cyano, nitro, oxo, hydroxyl, C₁-C₈ alkyl, C₁-C₆ hydroxyalkyl, C₁-C₆ haloalkyl, C₁₋₆ alkoxy(C₁-C₆ alkyl), C₃-C₇ cycloalkyl(C₁-C₆ alkyl),
- C₁-C₆ alkylthio(C₁-C₆ alkyl), C₁-C₆ alkylcarbonyloxy(C₁-C₆ alkyl), C₁-C₆ alkylS(O)₂(C₁-C₆ alkyl), aryl(C₁-C₆ alkyl), heterocyclyl(C₁-C₆ alkyl), arylS(O)₂(C₁-C₆ alkyl), heterocyclylS(O)₂(C₁-C₆ alkyl), aryl(C₁-C₆ alkyl)S(O)₂, heterocyclyl(C₁-C₆ alkyl)S(O)₂, C₂-C₆ alkenyl, C₁-C₆ alkoxy, carboxy-substituted C₁-C₆ alkoxy, C₁-C₆ haloalkoxy, C₁-C₆ hydroxyalkoxy, C₁-C₆ alkylcarboxy-substituted C₁-C₆ alkoxy, aryloxy, heterocyclyloxy,
- C₁-C₆ alkylthio, C₃-C₇ cycloalkyl(C₁-C₆ alkylthio), C₃-C₆ alkynylthio, C₁-C₆

alkylcarbonylamino, C_1 - C_6 haloalkylcarbonylamino, SO_3H , $-NR^7R^8$, $-C(O)NR^{23}R^{24}$, $S(O)_2NR^{18}R^{19}$, $S(O)_2R^{20}$, $R^{25}C(O)$, carboxyl, C_1 - C_6 alkoxycarbonyl, aryl and heterocyclyl; wherein the foregoing aryl and heterocyclyl moieties are optionally substituted by one or more of halogen, oxo, hydroxy, nitro, cyano, C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, phenyl(C_1 - C_6 alkyl), C_1 - C_6 alkoxy, C_1 - C_6 haloalkoxy, $S(O)_2(C_1$ - C_6 alkyl), $C(O)NH_2$, carboxy or C_1 - C_6 alkoxycarbonyl;

m is 0 or 1;

Q represents an oxygen or sulphur atom or a group NR⁹, C(O), C(O)NR⁹, NR⁹C(O) or CH=CH;

- n is 0, 1, 2, 3, 4, 5 or 6 provided that when n is 0, then m is 0;
 each R² and R³ independently represents a hydrogen atom or a C₁-C₄ alkyl group, or
 (CR²R³)_n represents C₃-C₇ cycloalkyl optionally substituted by C₁-C₄ alkyl;
 T represents a group NR¹⁰, C(O)NR¹⁰, NR¹¹C(O)NR¹⁰ or C(O)NR¹⁰NR¹¹;
 X¹, X², X³ and X⁴ are, independently, CH₂, CHR¹² (wherein each R¹² is, independently,
- C₁-C₄ alkyl or C₃-C₇ cycloalkyl(C₁-C₄ alkyl)) or C=O; or, when they are CHR¹², the R¹² groups of X¹ and X³ or X⁴, or, X² and X³ or X⁴ join to form a two or three atom chain which is CH₂CH₂, CH₂CH₂, CH₂OCH₂ or CH₂SCH₂; provided always that at least two of X¹, X², X³ and X⁴ are CH₂;
 - R^4 and R^5 each independently represent a hydrogen atom or a C_1 - C_4 alkyl group;
- R⁶ is aryl or heterocyclyl, both optionally substituted by one or more of: halogen, cyano, nitro, oxo, hydroxyl, C₁-C₈ alkyl, C₁-C₆ hydroxyalkyl, C₁-C₆ haloalkyl, C₁₋₆ alkoxy(C₁-C₆ alkyl), C₃-C₇ cycloalkyl(C₁-C₆ alkyl), C₁-C₆ alkylthio(C₁-C₆ alkyl), C₁-C₆ alkyl), C₁-C₆ alkyl), aryl(C₁-C₆ alkyl), heterocyclyl(C₁-C₆ alkyl), aryl(C₁-C₆ alkyl), aryl(C₁-C₆
- C₆ alkyl)S(O)₂, heterocyclyl(C₁-C₆ alkyl)S(O)₂, C₂-C₆ alkenyl, C₁-C₆ alkoxy, carboxy-substituted C₁-C₆ alkoxy, C₁-C₆ haloalkoxy, C₁-C₆ hydroxyalkoxy, C₁-C₆ alkylcarboxy-substituted C₁-C₆ alkoxy, aryloxy, heterocyclyloxy, C₁-C₆ alkylthio, C₃-C₇ cycloalkyl(C₁-C₆ alkylthio), C₃-C₆ alkynylthio, C₁-C₆ alkylcarbonylamino, C₁-C₆ haloalkylcarbonylamino, SO₃H, -NR¹⁶R¹⁷, -C(O)NR²¹R²², S(O)₂NR¹³R¹⁴, S(O)₂R¹⁵,
- R²⁶C(O), carboxyl, C₁-C₆ alkoxycarbonyl, aryl and heterocyclyl; wherein the foregoing aryl and heterocyclyl moieties are optionally substituted by one or more of halogen, nitro,

cyano, C₁-C₆ alkyl, C₁-C₆ haloalkyl, phenyl(C₁-C₆ alkyl), C₁-C₆ alkoxy, C₁-C₆ haloalkoxy, S(O)₂(C₁-C₆ alkyl), C(O)NH₂, carboxy or C₁-C₆ alkoxycarbonyl; R⁷, R⁸, R⁹, R¹⁰, R¹¹, R¹³, R¹⁴, R¹⁶, R¹⁷, R¹⁸, R¹⁹, R²¹, R²², R²³ and R²⁴ are, independently hydrogen, C₁-C₆ alkyl, C₁-C₆ haloalkyl, C₁-C₆ hydroxyalkyl, C₃-C₇ cycloalkyl, C₃-C₇ cycloalkyl(C₁-C₄ alkyl) or phenyl(C₁-C₆ alkyl); and, R¹⁵ and R²⁰ are, independently, C₁-C₆ alkyl, C₁-C₆ hydroxyalkyl, C₃-C₆ cycloalkyl, C₃-C₇ cycloalkyl(C₁-C₄ alkyl) or C₁-C₆ alkyl optionally substituted by phenyl; R²⁵ and R²⁶ are, independently, C₁-C₆ alkyl or phenyl (optionally substituted by one or more of halogen, nitro, cyano, C₁-C₆ alkyl, C₁-C₆ haloalkyl, phenyl(C₁-C₆ alkyl), C₁-C₆

alkoxy, C₁-C₆ haloalkoxy, S(O)₂(C₁-C₆ alkyl), C(O)NH₂, carboxy or C₁-C₆ alkoxycarbonyl); or a pharmaceutically acceptable salt thereof, or solvate thereof, or a solvate of a salt thereof; in the manufacture of a medicament for the modulation of a chemokine receptor.

11. A method of treating an inflammatory disease in a patient suffering from, or at risk of, said disease, which comprises administering to the patient a therapeutically effective amount of a compound of formula (I), or a pharmaceutically acceptable salt thereof, or solvate thereof, or a solvate of a salt thereof, as defined claim 10.